Waste Management in Thailand

Solid and Hazardous Substances Management Bureau
Pollution Control Department
Ministry of Natural Resources and Environment
Thailand
Municipal Solid Waste Management: Generation, Recovery, and Disposal

**Waste Recovery**
- Composting & Biogas, 7%
- Waste-to-Energy, 4%
- Recyclables, 89%

**Waste disposal**
- Sanitary disposed, 47%
- Improper disposed, 53%

Source: PCD, 2009
E- Wastes Management & Trend

**WEEE Management**
- Storage at sources, 36%
- Other, 28%
- Discarded, 6%
- Junk shop collection, 30%

**HHW Management**
- Storage at sources, 7%
- Discarded, 21%
- Other, 4%

Source: HHW & WEEE Inventories, PCD, 2008
Industrial Waste Management

Industrial Waste
21.551 MT

Hazardous Waste
2.287 MT (10.61 %)

Non-Hazardous Waste
19.264 MT (89.39 %)

Source: DIW, 2009
Impacts of Improper Management

- Air pollution
- Leachate / wastewater
- Surface water and groundwater contamination
- Land use and ecological damages
- Nuisance and Health risk and its impacts
- Socio-economic impact
Mismanagement of Waste

Co-disposal of HW & MSW
Illegal Dumping / Open Dumping
Mismanagement of Waste

Lack of awareness & knowledge

No appropriate segregation & collection system

Poor recycling facilities

No properly disposed
Mismanagement of Waste

Illegal Trafficking & Dumping of Industrial HW

Illegal Import of HW and E-wastes
Mismanagement of Waste

No Operational Procedures
No Environmental Controls
Current Waste Management

Strategies

- Government policy statement and announcement
- Awareness raising/ Capacity building /
  Stakeholders’ participation
- Community - based solid waste management
- R&D on 3Rs  (CT/CP/Eco-design, Green products)
- Promotion for recycling business
- Policy and Implementation on Green Procurement of Government Sector
Waste Management Policy

Internal Factors
- Government policy
- Socio-economic development
- Resource and energy conservation
- Pollution status

External Factors
- International agreements
- Trade and environment
- International standards
- Global environmental problems

National Policy on Waste Management

3Rs Promotions  Integrated Technology  Clustering Management  Public Private Partnership

Waste-to-Energy
Step 1 Reduce wastes and by-products from manufacture processes

Step 2 Reuse wastes and consumed products

Step 3 Recycle wastes, consumed products and unreusable materials

End products (recyclable material, heat, electricity and biogas)
3Rs Capacity Building

3Rs Training

Guidelines & Manuals

Awareness Raising

Waste - specific containers
Community- Based Recycling

- School recycling programs (Garbage Bank)
- Community buy back centre
- Waste donation
- Household composting
- Zero waste programs
Hazardous Waste Management

• **E-waste Inventory**: Funded by Ministry of the Environment, Japan and cooperation with Electric and Electronics Institute of Thailand to survey 6 types of E-wastes from cradle-to-grave and to recommend effective management.

• **Household Hazardous Waste**: To promote system management from source separation to recycling and disposal targeted in Bangkok metropolitan and 23 major municipalities.
Multi-Stakeholders Cooperation

• Cooperate with manufacturers, distributors and communities to take back end-of-life products

- Packaging and packaging wastes
- Mobile phone and batteries
- Fluorescent lamp
- Used lead-acid batteries and dry cell batteries

Mobile phone
Packaging wastes
Fluorescent lamp
Informal Sector Promotion

- Strengthen informal sectors on waste business: Green junkshop projects
Industrial Waste Management

- Promoting proper waste management, including waste minimization and recovery
- Promoting Eco-industrial estate/park/town
- Supporting networking among states, publics, and enterprises
- Promoting industrial waste exchange programme
Management Constraints

- Less concerns on waste separation, reuse, and recycling
- Insufficient financial support for 3Rs activities and related infrastructures
- Uncertainty in market prices of recyclable wastes
- Lack of R&D on 3Rs modern technologies
- Limitations of system management for WEEE and hazardous wastes
- Lacks of mechanisms to promote private investment on waste management
• **Government Green Procurement**
  
  - Lists of green products and services
    (19 products and 4 services)
  - Guideline and criteria for green procurement
  - Capacity building for stakeholders
  - Road map for promotion of green products
Government must take lead in green procurement to promote green market.
Government Green Procurement

Targets on Number of Government Agencies

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<th>2009</th>
<th>2010</th>
<th>2011</th>
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<td>50</td>
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- 2008: 25%
- 2009: 50%
- 2010: 75%
- 2011: 100%

Government Green Procurement

Targets on Amount of Green Products to be Procured

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<th>Year</th>
<th>Target %</th>
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<tr>
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<td>2010</td>
<td>40</td>
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<td>2011</td>
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• **National 3Rs Conference**

To introduce 3Rs principle, policy and strategies as well as transfer knowledge, experience and best practices among government, business, NGOs and civil society in 4 regions of Thailand (Central, North, Northeast and South).
• **Thailand Waste Recovery Center (TWRC)**

To develop 3Rs database and information technology as knowledge hub for dissemination of 3Rs knowledge, technologies, experiences, and best practices through cyber network.
Achievement

- **3Rs Regulation Development**
  - Develop master law for promotion of waste reduction, reuse and recycling from upstream processes to final disposal
  - Basic principle of the law include resource efficiency, extended producer responsibility, public private partnership and economic instruments
• **National 3Rs Strategic Plan**

  • Supported by UNEP RRC.AP under the project of Advance Waste Management in Asia and the Pacific (AWMAP)

  • **Objective**: To develop national 3R policy, goal and strategies as direction of environmental sound management of wastes for all stakeholders

  • **3Rs strategy**: Apply various principles and measures of waste management such as resource efficiency, sustainable consumption, 3Rs promotion, proper treatment and disposal of waste residues
Future Vision

- Integrated Management of 3Rs and WTE

- **3Rs** and WTE

- Recyclable

- Compost

- Heat/Electricity

- RDF

- Biogas

- Incineration

- Credit/used/sold

- Landfill

- Ash

- Non-combustible/Non-decompose

- Compost

- Biogas

- Incineration

- Credit/used/sold

- Landfill
Future Vision

- **Eco-Industrial Development**

  - Develop and transfer sound management and 3Rs technologies for sustainable resource and energy consumptions with pilot projects on selected industries

  - Full scale study and planning for development of eco-industrial zone/eco industrial park/eco-town projects and related businesses
Future Vision

- Linkage of 3Rs and Sustainable Development

3Rs Principle

- Sustainable Production and Consumption
- Global Warming/CDM
- Poverty/Job Opportunity
- Trade and Environment
- Resource and Energy Conservation and Recovery
Ultimate Goal

Sustainable Development Society

Resources → Wastes → Consumption → Resources
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